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(21) International Application Number: PCT/US91/07025 (22) International Filing Date: 25 September 1991 (25.09.91) (30) Priority data: 590,613 28 September 1990 (28.09.90) US 737,935 29 July 1991 (29.07.91) US 756,008 6 September 1991 (06.09.91) US (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors: MURCH, Bruce, Prentiss ; 8811 Cottonwood Drive, Cincinnati, OH 45231 (US). MORRALL, Ste- phen, William ; 5505 York Ridge Road, Guilford, IN 47022 (US). MAO, Mark, Hsiang-Kuen ; 4114 Fox Hol- low Drive, Cincinnati, OH 45241 (US).		(74) Agent: REED, T., David; The Procter & Gamble Com- pany, Ivorydale Technical Center, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US). (81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CI (OAPI patent), CM (OAPI patent), CS, DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (Eu- ropean patent), GN (OAPI patent), GR (European pa- tent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MN, MR (OAPI patent), MW, NL, NL (European pa- tent), NO, PL, RO, SD, SE, SE (European patent), SN (OAPI patent), SU*, TD (OAPI patent), TG (OAPI pa- tent). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>	
(54) Title: DETERGENT CONTAINING ALKYL SULFATE AND POLYHYDROXY FATTY ACID AMIDE SURFACT- ANTS			
$R^2 - \overset{\overset{O}{\parallel}}{C} - \overset{\overset{R^1}{ }}{N} - Z \quad (I)$			
(57) Abstract <p>Disclosed are detergent compositions comprising alkyl sulfate and polyhydroxy fatty acid amide of formula (I) wherein R¹ is H, C₁-C₄ hydrocarbyl, 2-hydroxy ethyl, 2-hydroxyl propyl, or mixture thereof, R² is C₅-C₃₁ hydrocarbyl, and Z is a polyhydroxy hydrocarbyl with a linear hydrocarbyl chain having at least three hydroxys directly connected to the chain, or an alkoxyated derivative thereof, in combination with a suds suppressor. In another aspect, the alkyl sulfate and polyhydroxy fatty acid amide are utilized together within selected ratios for improved performance. In another aspect, liquid detergents are provided containing the polyhydroxy fatty acid amide and C₁₄ or higher alkyl sulfates. In yet another aspect, deterative particles of alkyl sulfate and polyhydroxy fatty acid amide are provided. In yet another aspect, specified types of auxiliary surfactants are added to the composition for improved results.</p>			

* See back of page

CLAIMS

1. An alkyl sulfate-based, controlled sudsing liquid or solid laundry detergent composition useful for cleaning fabrics in automatic washing machines, said composition characterized in that it comprises:

- (a) at least 1% by weight of a polyhydroxy fatty acid amide compound of the formula:



wherein R¹ is H, C₁-C₄ hydrocarbyl, 2-hydroxy ethyl, 2-hydroxy propyl, or a mixture thereof, R² is C₅-C₃₁ hydrocarbyl, and Z is a polyhydroxyhydrocarbyl having a linear hydrocarbyl chain with at least 3 hydroxyls directly connected to said chain, or an alkoxylated derivative thereof;

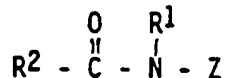
- (b) at least 1% by weight of an alkyl sulfate surfactant; and
(c) preferably, a suds suppressing amount of a suds suppressor;

wherein said composition has a weight ratio of (a):(b) of from 1:10 to 10:1.

2. A detergent composition as in Claim 1 wherein said detergent composition comprises at least 3% polyhydroxy fatty acid amide and at least 3% alkyl sulfate, and said weight ratio is from 6:1 to 1:6.

3. A detergent composition as in Claim 2, which further comprises from 1% to 30% of an auxiliary surfactant component selected from alkyl benzene sulfonate surfactants, alkyl ester sulfonate surfactants, alkyl ethoxylate surfactants, alkylpolyglycoside surfactants, paraffin sulfonate surfactants, or alkyl phenol alkoxylate surfactants, or mixtures thereof.

4. A detergent composition as in Claim 1, wherein said suds suppressor is selected from the group consisting of silicone suds suppressors, hydrocarbon suds suppressors, and monostearyl phosphate suds suppressors, and mixtures thereof.
5. A detergent composition as in Claim 1, which comprises at least 0.5% of a monocarboxylate fatty acid, or a salt thereof, suds suppressor.
6. A detergent composition as in Claim 1, wherein R¹ is methyl, R² is C₁₁-C₁₇ alkyl or alkenyl, Z is -CH₂(CHOH)_nCH₂OH, -CH(CH₂OH)-(CHOH)_{n-1}-CH₂OH, or -CH₂-(CHOH)₂(CHOR')(CHOH)-CH₂OH wherein n is an integer from 3 to 5, inclusive, and R' is H or a cyclic or aliphatic monosaccharide.
7. A composition according to Claim 1 wherein, with respect to said polyhydroxy fatty acid amide, Z is derived from maltose.
8. A composition according to Claim 1 wherein, with respect to said polyhydroxy fatty acid amide, Z is derived from a mixture of monosaccharides, disaccharides and, optionally, higher saccharides, said mixture comprising at least 1% of at least one disaccharide, preferably maltose.
9. A detergent composition as in Claim 1, further comprising at least 1%, by weight, of a detergent builder.
10. A detergent composition according to Claim 9 comprising:
 - (a) at least 1% by weight of a polyhydroxy fatty acid amide compound of the formula:



wherein R¹ is methyl, or a mixture thereof, R² is C₉-C₁₇ alkyl or alkenyl, and Z is a glycityl derived from a reducing sugar, preferably C₁₁-C₁₇ N-methyl glucamide, C₁₁-C₁₇ N-methyl maltamide, or mixtures of said glucamide and maltamide, or an alkoxylated derivative thereof; and

(b) at least 1% by weight of a C₁₄-C₁₈ alkyl sulfate surfactant;

wherein the weight ratio (a):(b) is from 1.25:1 to 1:6, preferably from 1.25:1 to 1:4.

11. A method for laundering fabrics without oversudsing, characterized in that it comprises contacting said fabrics with an aqueous bath containing a composition according to Claim 1.

12. A method according to Claim 11 wherein said Z moiety in said polyhydroxy fatty acid amide is derived from mixed monosaccharide, disaccharide and polysaccharides available from plant sources.

13. A method according to Claim 11 wherein said R² moiety in said polyhydroxy fatty acid amide is C₁₅-C₁₇ alkyl, alkenyl, or mixtures thereof.

14. A deterative particle comprising 5%-90% of a polyhydroxy fatty acid amide and 10%-90% of an alkyl sulfate surfactant, characterized in that they comprise 1%-30% by weight of a solubilizing agent.